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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/681,434	10/08/2003	Elisa M. Cross	57854US002	6675

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EXAMINER	
NGUYEN, KEVIN M	

ART UNIT	PAPER NUMBER
2629	

DATE MAILED: 09/15/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	**Application No.** 10/681,434	**Applicant(s)** CROSS ET AL.
	Examiner Kevin M. Nguyen	**Art Unit** 2629

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *12 July 2006*.
2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.
3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-18* is/are pending in the application.
  4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5)☒ Claim(s) *17 and 18* is/are allowed.
6)☒ Claim(s) *1,2,4 and 6-16* is/are rejected.
7)☒ Claim(s) *3 and 5* is/are objected to.
8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.
10)☒ The drawing(s) filed on *08 October 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.
  Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
  Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  a)☐ All b)☐ Some * c)☐ None of:
    1.☐ Certified copies of the priority documents have been received.
    2.☐ Certified copies of the priority documents have been received in Application No. _____.
    3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
  * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
  Paper No(s)/Mail Date *02/17/2004, 08/01/2005*.
4) ☐ Interview Summary (PTO-413)
  Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. Applicant's election with traverse of group I filed on 12 July 2006 is acknowledged. The traversal is on the ground that claims 17-18 also are drawn to a driving structure of a resistive touch screen with conductive polymer. This is found persuasive because the requirement is deemed proper; therefore, the restriction of claims 1-18 filed on 28 June 2006 is withdrawn. Claims 1-18 are currently pending in this application.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claim 1 is rejected under 35 U.S.C. 102(e) as being anticipated by Welsh et al (US 6,469,267) hereinafter Welsh.

4. As to claim 1, Welsh discloses a resistive touch screen transmissive of visible light *[see col. 1, lines 13-16]*, comprising:

a top sheet *[a cover sheet 12]* movable toward a bottom substrate *[a second substrate 20]* under the influence of a touch input *[a stylus touches on said cover sheet 12 for inputting the signal, fig. 3]*, the top sheet [12] comprising a first conductive polymer layer facing a second conductive polymer layer disposed on the bottom substrate *[said cover sheet 12 and said second substrate 20 comprise intrinsically conductive polymer, and face with each other]*, the touch screen configured for electronic coupling to controller electronics that use signals generated when the first and second conductive polymer layers make local contact to determine the position of local contact *[wherein movement of the coversheet into contact with the conductive surface of the substrate generates a signal indicative of said contact by said stylus and wherein said coversheet has a polarity that is negative relative to the conductive surface of said substrate, see figs. 7 and 8, col. 3, lines 18-54, and col. 6, lines 20-30]*.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 2, 4, 8-10, 15 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Welsh et al.

7. As to claim 2, the resistive touch screen of claim 1, wherein the first conductive polymer layer has a sheet resistance of 1000 ohms per square or greater, whereas Welsh discloses said conductive polymer 12 having a surface resistively of less than 5000 ohm per square, col. 3, lines 40-41. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify a sheet resistance less than 5000 ohm per square to arrive a sheet resistance of 1000 ohms per square as claimed, because this would improve the number of touches before failure (see col. 5, lines 56-64).

8. As to claim 4, the resistive touch screen of claim 1, wherein the second conductive polymer layer has a sheet resistance of 1000 ohms per square or greater, whereas Welsh discloses said conductive polymer 12 having a surface resistively of less than 5000 ohm per square, col. 3, lines 40-41. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify a sheet resistance less than 5000 ohm per square including the second substrate 20 that is operated with the use of conventional electronics with the conductive polymer, to arrive a second conductive polymer having sheet resistance of 1000 ohms per square as claimed, because this would improve the number of touches before failure (see col. 5, lines 56-64).

9. As to claim 8, the resistive touch screen of claim 1, wherein the internal transmission of the conductive polymer layers taken together is 85% or greater, whereas Welsh discloses the first substrate 14 and the first conductive coating 16 being, preferably, transparent, i.e. each is characterized by a white light transmission of

at least 80%, more preferably at least 90%, and most preferably at least 95%. When using the switch of the present invention as a component of a touchscreen, it is preferred that the first substrate 14, the second substrate 20, the first conductive coating 16, and the second conductive coating 22 are transparent, i.e. each is characterized by a white light transmission of at least 80%, more preferably at least 90% and most preferably at least 95%, see col. 3, lines 55-65. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the first conductive polymer layers 14 and 20 to arrive the internal transmission of 85% as claimed, because this would improve the number of touches before failure (see col. 5, lines 56-64).

10. As to claim 9, a resistive touch system of claim 1, wherein the first conductive polymer is biased positive relative to the second conductive polymer layer, whereas Welsh discloses wherein the polarity of the first conductive polymer layer is negative relative to the second conductive polymer layer (see claim 10 of Welsh). It would have been obvious to a person of ordinary skill in the art at the time the invention was made to reverse the polarity 0.5 to 5 volts (see col. 5, lines 56-63) to arrive the polarity of the first conductive polymer layer is positively relative to the second conductive polymer layer as claimed, because this experiment showed with this result that were surprising and unexpected to improve the number of touches before failure (see col. 5, lines 56-64).

11. As to claim 10, the resistive touch screen of claim 1 configured to operate using controller electronics that apply 3 to 5 volts across one or both of the conductive

polymer layers, whereas Welsh discloses the voltage potential across the input terminals A and B as reduced from 5 volts to 0.5 volts dc or reversing the polarity 0.5 to 5 volts which are connected to both of the conductive polymer layers, see col. 5, lines 34-46.

12. As to claim 15, a resistive touch screen system comprising: a top sheet movable toward a bottom substrate under the influence of a touch input, the top sheet comprising a first resistive layer facing a second resistive layer disposed on the bottom substrate, at least one of the first and second resistive layers comprising a conductive polymer; and controller electronics electronically coupled to the first and second resistive layers, the controller electronics configured to use signals generated when the first and second resistive layers make local contact to determine the position of local contact. Claim 15 shares similar limitations to those included in claim 1 and therefore the rationale of rejection will be the same. Claim 15 has the added limitation "wherein the touch screen systems yields 100,000 or more touch inputs in the same location before failure of the device when the controller electronics are operated at about 3 to 5 volts," whereas Welsh discloses an experiment 3 having the voltage potential across the input terminals A and B as reduced from 5 volts to 0.5 volts dc or reversing the polarity 0.5 to 5 volts that was applied across the input terminals A and B which are connected to both of the conductive polymer layers after approximately 130,000 touches, see col. 5, lines 34-46. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to reverse the polarity 0.5 to 5 volts, and to modify the experiment 3

including the touch screen systems yields 130,000 touch inputs before the system fails, to arrive the limitation "the touch screen systems yields 100,000 or more touch inputs in the same location before failure of the device when the controller electronics are operated at about 3 to 5 volts" as claimed, because this experiment showed with this result that were surprising and unexpected, and to improve the number of touches before failure (see col. 5, lines 56-64).

13. As to claim 16, the resistive touch screen system of claim 15, wherein both the first and second resistive layers comprises conductive polymers, whereas Welsh discloses said cover sheet 12 and said second substrate 20 comprise intrinsically conductive polymer, see the explanation of claim 1 for details.

14. Claims 3 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Welsh et al in view of Ballare et al (US 6,124,848) hereinafter Ballare.

Welsh discloses all of the claimed limitation of claim 1, except wherein the conductive layer have sizes and sheet resistances that allow and data sampling rate of 30 and 100 coordinates per second.

However, figure 3 of Ballare discloses the sampling rate being different proper scaling from 0 to 100 coordinates per second corresponding to the sampling rate of 30 and 100 coordinates per second as claimed, see col. 6, lines 13-19.

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to implement the sampling rate of 30 and 100 coordinates per second as disclosed by Ballare in the Welsh's touchsystem because this would allow a user to optimize the display horizontal scan frequency so as to reduce pen or stylus and display scan signal interference, see Ballare col. 1, lines 60-67.

15. Claims 11-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Welsh et al in view of Dotson (US 6,753,853).

Welsh teaches all of the claimed limitation of claim 1, except for the resistive touch screen having a 4-wire construction, a 5-wire construction, a 7-wire construction, and a 8-wire construction.

However, Dotson discloses 4-wire construction, a 5-wire construction, a 7-wire construction, and a 8-wire which constructed the resistive touch screen, see col. 21, line 55-65 for details.

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to implement the resistive touch screen having a 4-wire construction, a 5-wire construction, a 7-wire construction, and a 8-wire construction as disclosed by Dotson in the Welsh's touchsystem because this would reduce power consumption to extend battery life in touch display devices (see Dotson, col. 3, lines 53-58).

Allowable Subject Matter

16. Claims 3 and 5 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: the cited prior art, single or combination, does not teach or suggest a resistive touch screen transmissive of visible light comprising: wherein the first and second conductive polymer layers have a sheet resistance in the range of 1000 ohms per square to 15,000 ohms per square, inclusive. If add this distinct feature to the independent claim 1 and will render the above limitation would be allowable and along with other limitation as recited in the independent claim 1.

17. Claims 17 and 18 are allowed.

18. The following is a statement of reasons for the indication of allowable subject matter: the cited prior art, single or combination, does not teach or suggest a method of making a touch sensor comprising a resistive layer disposed on a substrate comprising: selecting a desired minimum sampling rate for the touch sensor; selecting a touch sensor construction and dimensions for the resistive layer; determining the RC constant of the resistive layer given the selected dimensions; determining a maximum sheet resistance for the resistive layer based on the determined RC constant; and coating a conductive polymer material on the substrate to form the resistive layer at a thickness that gives a sheet resistance that does not exceed the maximum sheet resistance.

Conclusion

18. Any inquiry concerning this communication or earlier communications from the examiner should be directed to KEVIN M. NGUYEN whose telephone number is 571-272-7697. The examiner can normally be reached on MON-THU from 8:00-6:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, a supervisor RICHARD A. HJERPE can be reached on 571-272-7691. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8000.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the Patent Application Information Retrieval system, see http://portal.uspto.gov/external/portal/pair. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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Art Unit 2629

KMN
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